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Doctrine Adequate?



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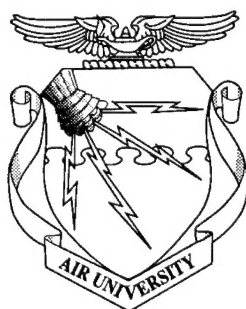
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MAXWELL AIR FORCE BASE, ALABAMA

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This publication has been reviewed by security and policy review authorities and is cleared for public release.

Foreword

This detailed study examines the doctrinal issues concerning combat operations in that portion of the battle space beyond the fire support coordination line (FSCL). The author, Lt Col Dewayne P. Hall, US Army, makes a strong case that lessons learned from Operation Desert Storm (ODS) illustrate a lack of consensus on who is responsible for the integrated employment of combat power beyond the FSCL. This lack of consensus divides rather than integrates US combat operations.

The study does an excellent job of defining the problem. It includes a comprehensive and useful summary of present terminology and doctrinal differences between the services. It then provides an assessment of the basic guidelines, terminology, and control measures, and offers detailed doctrinal, definitional, and organization recommendations to resolve the problems.

The author makes an argument that placing the FSCL at the political border prior to the allied ground offensive of ODS was detrimental to the overall effort because it impeded deep operations. His supporting evidence is statements by ground commanders that they were prevented from preparing the battlefield. Nevertheless, in view of the outcome, one could argue that the battlefield was well prepared, and that what was missing was a dialog between the operational and tactical levels—there was no structure to give feedback to tactical commanders concerning the decisions made at the strategic and operational levels regarding apportionment, targeting, and so forth. The opposite view of this FSCL placement is illustrated by the battle of Khafji. When the Iraqis mounted a three-division offensive into Saudi Arabia, most of their maneuver took place beyond the FSCL; the Joint Forces Air Component Commander (JFACC) was able to integrate and control sufficient combat power to destroy or disable the bulk of this threat prior to engagement against coalition ground forces.

To add a different perspective to the author's thesis, an airman would state that the fundamental challenge in solving these problems is recognizing the differences between the corps commander's tactical view of the battle

space, and the operational/strategic view shared by the Joint Force Commander (JFC) and functional components with theater-wide responsibilities, such as the JFACC. The FSCL is a tactical fire support coordination measure that has unintended consequences at the operational level. For example, in the ground offensive phase of ODS, the fire support coordination line was so deep that the JFACC was prevented from concentrating forces against the retreating republican guards, allowing their escape.

As a final consideration, this paper does not articulate the principal reasons airmen believe that the FSCL is a restrictive fire support coordination measure. First is unity of effort. If the area beyond the FSCL is a free-fire zone, the JFC would have no mechanism to prevent a tactical commander from trying to destroy an objective with a missile or deep helicopter attack after the JFACC had already destroyed it. A single commander must have the authority to integrate these weapons at the operational level. Second is prevention of fratricide. Just as the ground forces are at risk inside the FSCL, so must the air commander be responsible for deconfliction when aircrews are at risk beyond it.

Whether viewed from an Army perspective or an Air Force perspective, we are pleased to publish this study as a contribution to understanding how the services view the challenge of integrating the battlefield more effectively.



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About the Author

Lt Col Dewayne P. Hall, US Army, is an artillery officer with previous assignments as a fire support observer and controller, operations officer, and commander. He has worked closely as a battlefield coordinator of issues between Army and Air Force elements in the field. Colonel Hall is a graduate of the Air War College, class of 1997.

Preface

I decided to research the issue of joint operations in the "deep battle area" to get a better grasp on causes of numerous issues between the Army and Air Force regarding who is in charge of that part of the battlefield. In a former job as an observer-controller at brigade through corps levels, I experienced this same issue between Army commanders. Now, as a student at a senior service college, I find the issue exists at the joint level.

The issue of integrating the battlefield to allow multiple services (joint) to attack targets in the same vicinity has existed since aircraft were first used in a combat role to support ground troops. However, until after the Vietnam conflict, reliance on nuclear weapons and limited technology provided natural separations and, at the same time, mutual support and integration. Ground forces concentrated close in because of limited acquisition and attack capabilities. The Air Force concentrated farther out because of a lack of precision-attack capabilities to service individual high-payoff targets close in. Electronic attack methods (electronic warfare, jamming, and so on) were limited. These factors contributed to Air Force reliance on the Army for suppression of enemy air defenses as it traversed into enemy territory to attack deep targets.

The Army relied on the Air Force for battlefield air interdiction and close air support because of limited range in artillery systems and survivable attack helicopters.

The shift in support and integration of relationships between the services is the result of three occurrences: (1) changes in roles and missions dictated by the demise of the Soviet Union; (2) increases in acquisition and attack capabilities within the services brought on by a pursuit of technology to defeat the Soviet threat; and (3) the resulting overlaps in capabilities between the services created by this technology.

First, since the demise of the Soviet Union, the United States has no credible conventional threat. As a result, services face reductions in force structure and shrinking budgets. The result is competition for legitimacy, dollars, and relevancy. This type of competition causes parochial

thinking and pursuit of additional roles and missions to justify requests for additional funds and to support claims of relevancy in future operations.

Second, as a result of deep battle studies back in the early seventies, all military services focused on defeating "echelon" tactics employed by the Soviet Union. Technology yielded extended-range and more lethal attack systems such as the Multiple Launch Rocket System, Army Tactical Missile System, and Apache attack helicopters, according to the 1995 edition of Field Manual (FM) 100-7, *Decisive Force: The Army in Theater Operations*. Longer-ranging, accurate, real-time acquisition assets (Quick-Fix; OH-58D; joint surveillance; target attack systems; unmanned aerial vehicles; and so on) were also fielded. At the same time, the Air Force developed and fielded very sophisticated precision-guided munitions such as the RAPTOR (AGM-142), an air-to-surface, precision-guided, standoff missile; joint direct attack munitions; and the conventional air-launched cruise missiles. These new munitions are deliverable with pinpoint accuracy any place on the battlefield without significant fratricide risks.

Finally, the first two occurrences resulted in overlaps and redundancies in traditional roles and capabilities of the two services. Whereas the Army once concentrated 40 to 50 kilometers (km) forward of the forward line of own troops or forward edge of battle area, it now has the capability to acquire and engage targets out to beyond 150 km. The Air Force can safely engage targets within hundreds of meters of friendlies without significant risks of fratricide. Gen Michael Dugan stated in his article "Inside the Air War," published in the 11 February 1991 issue of *U.S. News & World Report*, that through improved precision, an operation that required thousands of bombs and aircraft in World War II can now be done with the same probability of success—and far less risk to aircraft or civilians—with a single aircraft. The result—both services can fight essentially anywhere on the battlefield.

These peacetime occurrences manifest themselves in training and on the battlefield. The overlaps and redundancies occur primarily in the deep battle area—an ill-defined area at the far limits of tactical level operations and

the close limits of operational level operations. This is the area where the FSCL is normally drawn—the line at the center of the service controversy. The issue is the integration of assets beyond the FSCL. This study does not examine who should be the integrator in the deep battle area beyond the FSCL; instead, it examines whether the basic guidelines are in place to effect integration.

Doctrine is the basis for resolving these types of issues. The fact that these issues exist, and have gone unresolved, points to flaws in doctrine. The purpose of this study is to determine if there are flaws in doctrine, and if so, what they are, and whether they have an operational impact on battlefield integration. The working hypothesis of the study is that joint doctrine does not provide the necessary directives in clear terminology and graphic control measures to effect integrated combat operations in the deep battle area. In my opinion, current doctrine for joint operations in the deep battle area is ambiguous, creating an environment where services develop individual doctrines that are neither mutually supporting nor focused toward common objectives.

Integrating Joint Operations Beyond the FSCL

Is Current Doctrine Adequate?

Control of joint assets employed beyond the fire support coordination line, regardless of boundaries, is the responsibility of the joint force air component commander.

—US Air Force Position

Control of assets (fires) within the boundaries of the ground maneuver commander is the responsibility of that ground maneuver commander.

—US Army Position

The age-old "turf battle" between the US Air Force and the US Army is alive and well. The two service positions above, taken from "Army-Air Force Operational Issues,"¹ are but the tip of the iceberg. There are numerous diverging views between the services on battlefield integration (in some cases, battlefield separation) at the operational level. One of the most prevalent points of contention is the disagreement over who controls fires, targeting, and interdiction beyond the fire support coordination line (FSCL), the area where operational and tactical level operations overlap (fig. 1).

A contributing factor is that this area has no universally accepted official name or function. Army references describe this area as the *deep battle area*. When a ground commander implements an FSCL, he or she is freeing up a portion of the deep battle area for engaging targets of opportunity by *supporting* organizations, to include the Air Force, but not relinquishing control of that part of the battlespace.

Air Force references describe the area beyond the FSCL simply as an area where *interdiction* occurs. Current doctrine states that the Air Force is responsible, overall, for interdiction. Joint doctrinal manuals do not specifically address the area beyond the FSCL. However, references do reflect that a ground commander is responsible for operations inside his or her boundary or area of responsibility. A ground commander's area of responsibility extends beyond the FSCL. Joint doctrine also states that geographic boundaries should not be applied to interdiction. If the

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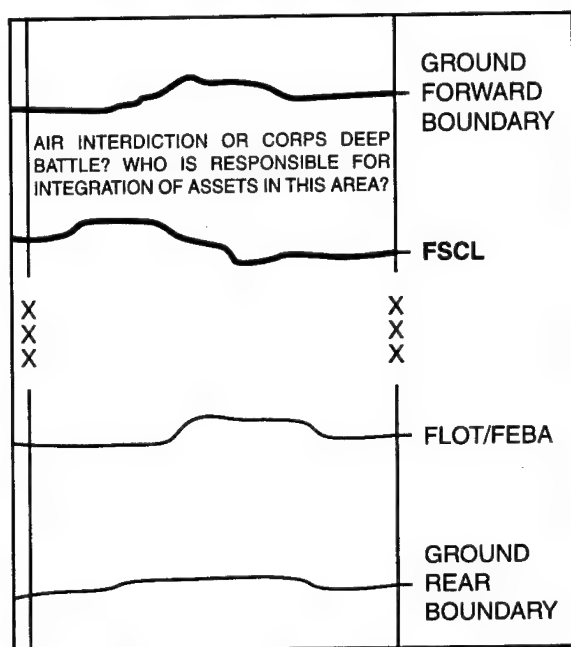


Figure 1. Linear Battlefield

joint force air component commander (JFACC) is responsible for interdiction theaterwide, and the joint force land component commander is responsible in his or her area, which includes the FSCL, then who really is responsible for operations beyond this line?

The failure to answer this question has had negative effects during combat operations. It contributed to missed opportunities to further demilitarize the Iraqi army during the latter part of Operation Desert Storm (ODS). The Army and Air Force reverted to physically dividing the battlefield rather than integrating it. Iraqi forces escaped to Baghdad as the two services sought answers.

The problem, service rivalry over control of a particular part of the battlefield (beyond the FSCL), has gone unresolved since at least 1989. According to current joint doctrine, both services are right and both are wrong in their positions. There are no clear, accepted directives regarding terminology and graphics in current joint doctrine that resolve the differences.

The author believes that the correct approach to a solution of the problem of who controls fires, targeting, and interdiction beyond the FSCL would be for the chairman of the Joint Chiefs of Staff to direct the services to define the FSCL and to agree on specific rules and control measures to preclude individual service interpretations and applications. Until such action is taken and taught in the service schools, there can be no solution to the problem. Implementation of this recommendation would give the commanders in chief (CINC) a good starting point for taking service-coordinated actions toward common objectives without having to suffer the consequences of conflicting interpretations, confusion, inability to take prompt action, and finger pointing, as is the case now.

Doctrinal Assessment

The USAF views the area beyond the FSCL as their area of responsibility. It is extremely difficult to coordinate ATACMS and Apache attacks beyond the FSCL within the Corps's area of responsibility.

—G3, VII Corps

At least fifty to sixty percent of the Republican Guard Divisions escaped with their equipment due to this joint warfighting problem. . . .

—U.S. News & World Report

These two problems resulted from the services' dividing the battlefield. Are there doctrinal implications in these scenarios? If so, is this the result of faulty doctrine, non-compliance with established doctrine, or misinterpretations of established doctrine?

Overview

Doctrine is the foundation of military operations. It establishes the guidelines and principles under which the military trains, equips, organizes, deploys, and fights. The principles for joint operations are found in Joint Publication (Joint Pub) 3-0, *Doctrine for Joint Operations*. Military departments use this as a guide for everything from professional military education to designing tanks and air-

craft. Commanders in chief use this basic doctrine to organize their forces and assign missions. The spirit of this doctrine finds its way down to the lowest ranking soldier on the battlefield as he presses the fire switch on his Army Tactical Missile System (ATACMS) to engage an enemy SCUD position. In this way, joint doctrine stretches from the Pentagon to the front line of troops.

Doctrine Defined

Military Doctrine — fundamental principles that guide the employment of forces. Doctrine is authoritative. It provides the instilled insights and wisdom gained from our collective experience with warfare. Doctrine facilitates clear thinking and assists a commander in determining the proper course of action under the circumstances prevailing at the time of the decision. Though neither policy nor strategy, joint doctrine deals with the fundamental issue of how best to employ the national military power to achieve strategic ends.²

Joint Doctrine — fundamental principles that guide the employment of forces of two or more Services in coordinated action toward a common objective. . . .³

To be totally effective, joint doctrine should be flexible enough to allow the combatant commander to use it as a guide to fit his particular situation. Yet it must be descriptive and directive enough to require service components to function in a unified and synchronized manner. Doctrine must have a clear language (terminology and graphics) and must be precise in its principles. Above all, it must be understood and accepted by those who must execute it.

Doctrinal References

Doctrine for joint operations that addresses the issue specifically is contained in several joint publications. Joint Pub 3-0, *Doctrine for Joint Operations*, is the basic doctrine for the conduct of joint operations. It is supplemented by Joint Pub 3-56.1, *Command and Control for Joint Air Operations*, which focuses on the air portion. Joint Pub 3-03, *Doctrine for Joint Interdiction Operations*, goes one step farther and deals spe-

cifically with interdiction operations at the joint and operational level. This publication is further supplemented by Joint Pub 3-03.1, *Doctrine for Joint Interdiction of Follow-on Forces*, which addresses interdiction operations for the "second echelon" forces. Joint Pub 3-09, "Doctrine for Joint Fire Support," is not yet published. This document has been in draft form since at least 1989, partially due to controversial issues contained in it regarding the FSCL. Joint Pub 1-02, *Department of Defense Dictionary of Military and Associated Terms*, provides common definitions relating to the issue. All of these documents, directly or indirectly, address the issue surrounding the FSCL, deep operations, and interdiction.

Deep Battle Doctrine

Operations beyond the forward line of own troops (FLOT), often referred to as the "deep battle or deep operations area," require the synchronized and integrated efforts of all services and all available assets. Ground commanders traditionally use this area to set the conditions for the close battle. Air commanders traditionally use this area for strategic attack, offensive counter air, and air interdiction operations. From a joint perspective, this is where tactics end and strategic operations become the focus. From the operational perspective, deep operations for ground and air are referred to as joint and interdiction operations, and are contained in the fundamental principles of operational art. Three of the applicable fundamental elements of operational art are synergy, simultaneity, and depth.

While the close battle is waged near the FLOT or the forward edges of the battle area, joint and combined assets interdict enemy forces, in depth, out to the limits of their weapon systems. Strategic and joint assets also strike at the enemy's center of gravity and war-making abilities. This concept provides a synergistic effect on the enemy and prevents his follow-on forces from massing with a well-coordinated effort. The synergy achieved by synchronizing the actions of air, land, sea, space, and special operations forces in joint operations and in multiple dimensions enables joint force commanders (JFC) to project focused capabilities that present no seams or vulnerabilities to an enemy to exploit.⁴

The fact that multiple services participate simultaneously in this "deep battle" dictates that joint doctrine must clearly delineate roles and responsibilities. Control measures must be focused to facilitate rather than eliminate joint and combined operations. The doctrine or tactics, techniques, and procedures (TTP) must be simple and incorporated in all peacetime training and exercises to ensure all service personnel are well versed on the operational parameters. This process will reduce the risk of fratricide, exploit overlaps in capabilities, eliminate redundant engagements, and enhance joint cooperation and operations. A comprehensive joint doctrine will also facilitate simultaneity and depth—the foundations of deep operations. Again, the intent of the concept of simultaneity and depth is to bring force to bear on the opponent's entire structure simultaneously. Furthermore, this action must occur within the decision-making cycle of the opponent.⁵

Doctrine Evaluation

Joint doctrine does not provide a battlefield framework as a guide that delineates the JFC's area of operation for deep attack, interdiction, air interdiction, interdiction fires, deep supporting fires, or joint precision interdiction (functions and effects). This is partially attributed to the fact that several of these terms or phrases are effects based on an intended outcome rather than a specific target at a particular point on the battlefield. Perhaps this is one of the primary shortcomings. It is difficult to picture how the numerous operations are synchronized and integrated to attain the synergistic effects desired. Figure 2 provides a linear battlefield structure or framework containing some of the operations that may take place simultaneously in the deep battle area.

A review of the list of terms associated with deep operations indicates proliferation of inconsistent doctrinal terminology at the joint level. A detailed examination of the guidance contained in the list of joint doctrinal manuals and a graphical portrayal (fig. 2) with associated terms lend credibility to this accusation.

After one analyzes the numerous functions and effects associated with joint operations in the deep battle area,

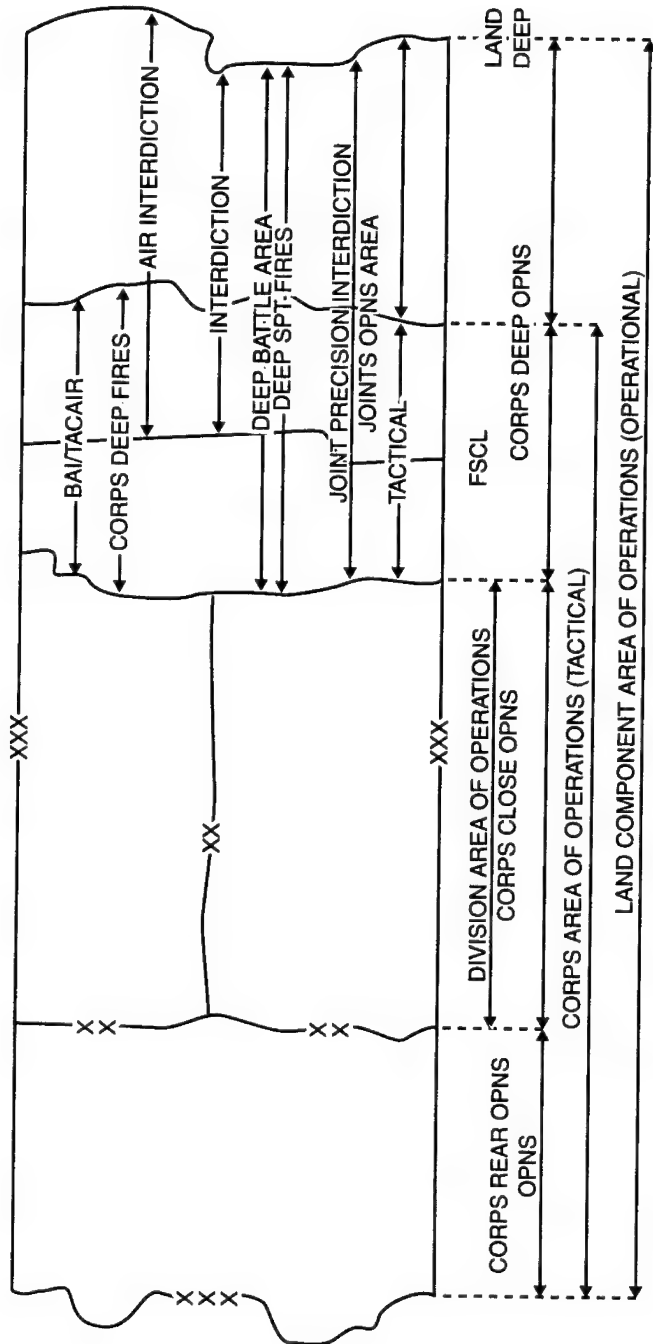


Figure 2. Joint Battlefield Structure

including service interpretation and application, one may conclude that three fallacies in joint doctrine are revealed: (1) doctrinal terms are vague and too numerous; (2) the overall concept for interdiction is ill-defined; and (3) graphical control measures are inadequate for separating roles and integrating functions.

Operation Desert Storm provided numerous examples or scenarios that highlight these shortcomings in doctrine. The following sections are dedicated to assessing the impact of these fallacies during ODS.

Doctrinal Terminology

Unlike the Army, the US Marine Corps interprets the FSCL as authority to fire beyond it, regardless of boundaries, without coordination. The Air Force interpreted the FSCL as a restrictive fire support coordination measure directly opposed to joint and Army definition.

—Desert Storm Deep Battle Observations

Terminology is the foundation on which doctrine and procedures are based. Terminology describing an operation employing airborne maneuver forces, artillery, tactical air, and remotely piloted vehicles must be absolutely concise and universally understood. Without common understanding in language, probabilities of mission failure and fratricide increase. A control and coordination measure that integrates and synchronizes lethal assets like the ATACMS, Apache helicopters, and B-52 bombers, while special operations forces, reconnaissance elements, and civilians may be within hundreds of meters, must be absolutely understood and universally applied! Conversely, the FSCL, a measure used for this purpose, was interpreted differently by air and ground forces during ODS.

Everyone must use and understand common terms—maneuver commander, and fire supporter, Army and Air Force, and our allies. The most important and misunderstood term in this war (ODS) seemed to be the FSCL [fire support coordination line].⁶

Fire Support Coordination Line

The FSCL can be traced back to 1961. It replaced the old bomb safety line; it was defined as a no-fire line be-

tween corps and higher echelons and as a bomb line for ground and air forces.⁷ Of special note, it separated fires between two ground units (corps and higher echelons—field army) and separated fires (bombs) between ground and air. Ground commanders had few systems to fire or maneuver beyond the FSCL. This allowed the air effort to focus on the area beyond the FSCL with strategic attack and interdiction.

The current definition of the FSCL as found in Joint Pub 1-02 is as follows:

Fire support coordination line—a line established by the appropriate land or amphibious force commander to ensure coordination of fires not under the commander's control but which may affect current tactical operations. The fire support coordination line is used to coordinate the fires of air, ground, or sea weapon systems using any type of ammunition against surface targets. The fire support coordination line must be coordinated with the appropriate tactical air commander and other supporting elements. Supporting elements may attack targets forward of the fire support coordination line without prior coordination with the land or amphibious force commander, provided the attack will not produce adverse surface effects on or to the rear of the line. Attacks against surface targets behind this line must be coordinated with the appropriate land or amphibious force commander.⁸

Over time, roles, responsibilities, and capabilities have resulted in changes in interpretations of application for the FSCL. Table 1 provides a synopsis of current service interpretations of its functions and uses.

The Fire Support Coordination Line in Operation Desert Storm

The initial FSCL for ODS was established along the Saudi berm, which was a defensive measure established along the Saudi-Iraqi border. The fact that coalition forces fought an air war that was followed by a ground war contributed from the start to the initial FSCL's being a "restrictive" measure as opposed to a "permissive" measure. Since the Air Force was the primary service involved in combat operations beyond the FSCL, there were no prevailing reasons for other services to control operations beyond. Problems started and grew from this point.

The establishment of the FSCL on an international boundary restricted the corps's ability to shape the battlefield and caused most of the corps's fires to occur inside of the FSCL.⁹

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Table 1
FSCL Interpretations

	<i>Joint^a</i>	<i>Army^b</i>	<i>Air Force^c</i>	<i>Navy^d</i>	<i>Marine^e</i>
Establishing Authority	Appropriate Land or Amphibious Commander—after Coordination with Supporting & TAC Air Commander	ARFOR Commander	Not Stated	Ground Component Commander	Ground Component Commander
Purpose	Ensure Coordination of Fires Not under Control of Establishing Authority That May Affect TAC Opns	Allow ARFOR, Subordinate, Supporting (i.e., Air Force) Units to Swiftly Attack Targets of Opportunity	Define the Limits of Interdiction	Facilitate Atk of Targets Beyond; Ensure Safety from Air Atk; Max Weapon Capabilities; Ensure Aviators Understand Battlefield Geometry	Ensure Control of Air-Ground Ops by Ground; Ensure Aviators Understand Battlefield Geometry
Coordination Req.'s to Fire Beyond	Supporting Elements May Attack Beyond w/o Prior Coordination If No Negative Effects	Supporting Units Must Coord. with All Affected Cdrs to Avoid Fratricide (Air Force)	Command Authority for Interdiction	None for Supporting Elements Should	None
Application	Land, Air, Sea Weapons with Any Type Munitions	Not Stated	Not Stated	Land, Air, Sea with Any Munitions	All Weapon Systems—Any Munitions
Implications on Other Operations	Interdiction Not Bounded	Interdiction Occurs Short and Beyond—Planned Interdiction on Either Side Required No Coordination—Targets of Opportunity Should Be Coordinated	Interdiction Occurs Beyond	Not Stated	Not Stated

Sources:

^aJoint Pub 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 23 March 1994, 219.

^bField Manual (FM) 100-7, *Decisive Force: The Army in Theater Operations*, May 1995, 7-4.

^cDCS/Plans and Programs, Headquarters USAF, *JFACC Primer*, 2d ed., February 1994, 33.

^dMaj David H. Zook, *The Fire Support Coordination Line: Is It Time to Reconsider Our Doctrine?*, Fort Leavenworth, Kansas, 1992, 55.

^eZook, 53.

The continuing confusion at CENTCOM [Central Command] level over the moving of FSCLs and their use by four different corps finally led to the implementation of a CENTCOM FSCL by General Horner, the JFACC. . . .¹⁰

The definition of the FSCL as contained in joint doctrine contributes to improper uses of this type. There are three problems with the definition that foster these problems. First, the definition does not clearly specify *who* may establish an FSCL—the term *appropriate land or amphibious force commander* is too ambiguous. During ODS, the FSCL was established by corps and higher level commanders. Additionally, the rapid movement of corps elements caused numerous changes to the corps FSCL.¹¹ This caused problems for all involved because when individual corps commanders changed their FSCL, that action caused the United States Army Forces Central Command (ARCENT) consolidated FSCL to change too frequently. These changes made it difficult for the Air Force to keep its aircrews briefed on the current FSCL. Conversely, when ARCENT moved the FSCL, it did not fit the needs of the corps commanders. To facilitate stabilization, CENTCOM finally established an FSCL; however, the FSCL was established two levels above the intended corps level.

Traditionally, the FSCL is established by the lower commander (corps) to allow him or her to shape the battlefield based on his or her estimate of the situation, disposition of forces, and asset capabilities. Corps FSCLs are then consolidated at the next higher level into an Army-level FSCL. The frequent movement is offset by establishing a series of on-order FSCLs disseminated ahead of time and implemented as needed. The rapid and unparalleled advance of coalition ground forces negated this practice.

Despite the events in Operation Desert Storm, joint doctrine should establish a standard that everyone is expected to meet. Additional guidelines can be covered in theater standard operating procedures or operations orders after the theater is established. The current standard stating the "appropriate commander establishes the FSCL" leaves room for all to apply their individual interpretations, which is what occurred during ODS.

Additionally, the definition of FSCL says that "supporting elements may attack targets forward of the fire support coordination line without prior coordination."

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The Air Force viewed the FSCL as a restrictive fire control measure that required the Army to coordinate all surface-to-surface fires beyond the FSCL with the Air Force.¹²

Joint Pub 3-0, paragraph e, states, "The JFACC is the *supported commander* (emphasis added) for the JFC's overall air interdiction effort."¹³ Paragraph f states, "**Land and naval force commanders responsible for synchronizing maneuver and interdiction** within their AOs [area of operation] should be knowledgeable of JFC priorities" (emphasis in original).¹⁴

Does the second statement imply that land and naval force commanders are also supported commanders for the JFC's air interdiction effort? This question has not been answered.

The Air Force uses the FSCL as the separating line for interdiction. The FSCL is drawn within the operational commander's AO (fig.2). Who is really the supported commander between the FSCL and the forward boundary of the land component commander's AO? Are the desired effects interdiction or deep battle?

Again, the FSCL is a very important but controversial coordination measure. The level of controversy between the services surrounding its use and meaning dictates joint resolution. This is not an issue to be left to interpretation.

The lack of common understood joint fire support doctrine and the parochial interpretation of fire support coordination measures caused significant problems in fire support coordination, particularly at EAC [echelons above corps]. Unlike the Army, the US Marine Corps interprets the FSCL as authority to fire beyond the FSCL, regardless of boundaries, without coordination; the Air Force interprets the FSCL as a restrictive fire support coordination measure, directly opposed to the joint and Army definition.¹⁵

There are additional points to be considered for a complete understanding of the FSCL. First, it is not a boundary and therefore should not be interpreted as a means of assigning responsibility. Second, there is no requirement to establish an FSCL. It is an optional fire support coordination measure established only after considering the factors of mission, enemy, terrain and weather, troops and support available, time available (METT-T), and system capabilities. Again, as an optional measure, it is not best suited to delineate responsibilities. Third, it is first a tactical measure that may be established by individual corps

commanders. It can, however, be established or consolidated by the Army forces operational level commander as an operational level measure. Finally, the FSCL is a permissive measure, intended to allow relative freedom of engagement beyond. This is the exact opposite of a boundary, which means restrictive engagement beyond. Both Army and Air Force interpretations portray it more as a restrictive measure. Again, joint resolution is needed.

Deep Operations (Battle) Terminology

When XVIII Airborne Corps began deep-battle operations, it became apparent there's a great disconnect between the Air Force and Army concerning the use of Battlefield Air Interdiction (BAI) and application of the FSCL. The Army doctrinally uses BAI to allow the corps commander to shape the battlefield. . . . The Air Force prefers air interdiction (AI) because it allows them greater flexibility. . . .¹⁶

Deep (Battle) Operations. The area beyond the FSCL has no universally accepted name. Figure 2 provides terms associated with operations that occur in this area with indications of where they may appear in relation to the FSCL. In the absence of an official title, the area is labeled according to the functions performed.

The Army labels this area "deep operations."¹⁷ The term *deep battle* is used throughout this study along with some Army references to limit the scope to physical combat. Army deep operations focus on the enemy's command and control, logistics, and firepower. Deep operations occur within a ground commander's AO, but is more a function than an effect. Like interdiction, deep operations focus on uncommitted enemy forces. Deep operations are conducted in conjunction with close operations for a synergistic effect.

The Army further defines deep operations by target sets. For example, in the defense, the corps's initial deep operation will normally focus on the combined arms Army units and support systems to the rear of the main defensive belt.¹⁸ This technique assists the corps in isolating the current close battle and fighting the enemy in depth.

In general, Air Force references refer to functions or effects as opposed to a particular target set or place on the battlefield—close support, interdiction, and strategic attack. However, two references, *JFACC Primer* and *Air Force Manual (AFM) 2-1, Aerospace Operational Doctrine*, refer to interdic-

tion occurring beyond the FSCL (a particular place). In Air Force doctrine, interdiction disrupts, delays, or destroys an enemy's military potential before it can be used against friendly forces.¹⁹ The area beyond the FSCL then is simply a place where the Air Force conducts interdiction, strategic attack, counterair, and so on—it's where the JFACC operates.

Joint doctrinal manuals used in this study do not define a deep battle or operation area. There is also no reference to the FSCL's use as a boundary or delineation line for interdiction. Joint doctrine refers to two areas that do encompass the FSCL (the deep battle area), but on a much larger scale. These two geographical areas are the *area of responsibility* and *area of operation*.²⁰ Note that both are general, referring to the overall battlefield rather than any particular part.

Area of Responsibility (AOR) — the geographical area associated with a combatant command within which a combatant commander has authority to plan and conduct operations.

Area of Operation (AO) — an operational area defined by the joint force commander for land and naval forces. AOs do not typically encompass the entire operational area of the joint force commander but should be large enough for component commanders to accomplish their missions and protect their forces.

Interdiction. Joint Pub 3-03 states, "Great disconnect between the Air Force and Army concerning the use of BAI and the application of the FSCL. . . . The terms BAI and AI [air interdiction] need clarification. . . ." ²¹

The only common term or function that encompasses the activities around the FSCL is *interdiction*. This is because of the broad scope of interdiction and the fact that it is a function, aimed at effects. As a function, interdiction has specific objectives.

Interdiction aims to divert, disrupt, delay, or destroy enemy surface military potential before it can be used effectively against friendly forces.²²

The JFC should not apply strict geographic boundaries to interdiction but should plan for its theaterwide application, coordinating across boundaries or between subelements, to take full advantage of the effect of interdiction at

the operational level.²³ When applied at the tactical or operational levels near the FSCL, interdiction is provided by any service, with any weapon system. It is directed against follow-on forces; air defenses; supplies; command, control, and communications; and other targets that are not already affecting friendly operations. The flexibility included in the interdiction concept also fosters varying interpretations on its application (table 2).

Table 2
Interdiction Interpretations

	<i>Joint</i>	<i>Army</i>	<i>Air Force</i>
Purpose (Why)	Divert, Disrupt, Delay, or Destroy Enemy Surface Military Potential	Destroys Enemy Forces; Delays and Disrupts Maneuver; Diverts Resources	Diverts, Disrupts, Delays, or Destroys Enemy Surface Military Potential
Application (Where)	Theaterwide—No Boundaries	Short of and beyond FSCL	Beyond FSCL
Control Authority (Who)	JFC—Normally Appoints JFACC for Overall Interdiction; Ground Cdr within His AO	JFC; Ground Commander within His AO	JFACC Theaterwide and beyond FSCL or Cdr with Forces at Risk beyond FSCL
Focus (What)	JFC's Concept	JFC Concept or Ground Commander's Concept when Ground Ops Is Decisive Initiative	JFC/JFACC Concept
Timing (When)	Prior to <i>Effective</i> Use against Friendly Forces	Prior to <i>Effective</i> Use against Friendly Forces	Prior to use against Friendly Forces

As revealed in table 2, the interdiction concept is interpreted differently. Although the definition is straightforward, it is all but impossible to universally apply when there are so many varying interpretations. Because of its universal application in all parts of the battlespace, it will inevitably cross service roles and responsibility lines, creating additional controversy. The FSCL is not a solution for separating these overlaps because of varying interpretation of its functions.

The varying interpretations of close air support (CAS) versus battlefield air interdiction (BAI) versus air interdiction (AI) also had a negative impact on operations during ODS. Initially, the FSCL was along the Saudi-Iraqi border

(the berm). As a result, all missions, including reconnaissance, required clearance through the Air Force. Since the Air Force position was that anything beyond the FSCL was interdiction, and interdiction was the domain of the JFACC, ground commanders were hampered from setting the conditions for the attack.

Because the Air Force absolutely would not fly short of the FSCL before G-Day, we kept the FSCL in close to facilitate air attack of division and corps high priority targets. This caused two problems. Every fire mission or AH-64 attack beyond the FSCL had to be carefully and painstakingly cleared with the Air Force. Even counterfire required this lengthy process. Equally bad, air sorties beyond the FSCL were completely the domain of the Air Force. VII Corps could nominate targets beyond the FSCL, but could never be sure they would be attacked.²⁴

There are more than 10 similar issues raised by ground commanders on their inability to conduct "deep operations." This is partially due to a lack of joint recognition for deep battle as an operational concept. The area beyond the Saudi-Iraqi border (berm) or FSCL, immediately to the ground forces' front—an area into which they would be required to attack—was virtually inaccessible for reconnaissance or preparation. In essence, the area beyond the FSCL was an area that might be called "No Man's land, being a part of Grand Tartary."²⁵ Operation Desert Storm ended on a note of frustration on the part of both services over this issue.

Graphic Control Measures

The situation prompted the violation of established doctrine and development of new fire control support measures (Reconnaissance Interdiction Planning Line [RIPL]) and Artillery Deconfliction Line, and TTP for fire support at Army level **during** Operation Desert Storm [emphasis in original].²⁶

In order to obtain the synergistic effects of joint, simultaneous, deep operations, control measures must be clear and concise, universally understood, and capable of rapid dissemination when the situation changes. Commanders, both Army and Air Force, found themselves wanting for fire control measures to expedite their operations during Operation Desert Storm. Basic graphical control measures were inadequate for integrating, synchronizing, and facilitating unit or service operations. Measures implemented

during the operation were beneficial for the most part, but also caused confusion because they were nondoctrinal and had no universally understood definitions or applications.

After reviewing joint and service doctrine, one sees that there are three universally used graphical control measures associated with deep operations: (1) boundaries; (2) phase lines; and (3) FSCL. The FSCL was discussed earlier.

Doctrinal Control Measures

Universally accepted and understood control measures are required to delineate responsibilities for interdiction. Doctrinal control measures include the concepts of *boundary* and *phase line*, both of which are universally understood and, except in the case of interdiction, uncontested.

Boundary. The basic *boundary* has existed since ground forces. Its use is universally understood and is not contested except in the case of interdiction. The official definition provides clarity to its use.

Boundary—a line which delineates surface areas for the purpose of facilitating coordination and deconfliction of operations between adjacent units, formations, or areas.²⁷

Note that by official definition, air is unconstrained by the boundary. It can therefore be interpreted that interdiction is not limited or controlled by the boundary.

Phase Line. The *phase line*, like the boundary, is universally used and understood and not contested.

Phase Line—a line utilized for control and coordination of military operations, usually a terrain feature extending across the zone of action.²⁸

Note that the phase line has military-wide application according to joint doctrine. Additionally, it may apply across an entire zone of action for control and coordination. According to its definition, the phase line is more appropriate for dividing responsibilities than is the FSCL. However, all services are reluctant to use it because of its proliferation and use as a routine ground tactical control measure.

In summary, there are no universally accepted and understood control measures appropriate to delineate responsibili-

ties for interdiction. By definition, the phase line is usable, however, like the boundary, since it is considered a ground or maneuver control measure. The FSCL is not intended for that purpose, has too many different meanings, and is intended as a tactical (rapid change) line as opposed to an operational one. As stated in the definition, the boundary technically applies only to ground forces; the phase line applies to all military operations but is not universally accepted other than in the ground maneuver community.

Doctrinal Implications

After ODS, a survey revealed that participants (staffs) felt that control measures *did* ensure cooperation between forces.²⁹ One hundred seventy-nine (179) voted "yes"; 144 voted "no." When questioned if they were too restrictive, 157 replied "yes"; 109 replied "no." A follow-up question asked respondents to "describe any difficulties with control measures." Of the 401 responding, the most prominent issue was difficulties with the FSCL. The nondoctrinal use of this control measure caused great confusion and concern. What is unclear from the survey is whether control measures facilitated control and cooperation between ground forces, or between the Army and the Air Force. Either way, the survey supports findings in lessons learned that the FSCL is a universally misunderstood measure.

Initiatives and Recommendations

Air and ground commanders must be constantly on the alert to devise, and use, new methods of co-operation . . . There can never be too many projectiles in a battle.

—Gen George S. Patton Jr.

The issues of who establishes the FSCL, who controls fires both short of and beyond the FSCL, what separates the subordinate and higher commander's deep battles, and what separates Army and Air Force responsibilities have been studied in detail for the last 10–20 years. There are literally hundreds of books and monographs that reveal very innovative solutions. Most solutions fall in the

category of new organizations, increased training, improved doctrine and TTP, or new systems.

This study finds that several of these solutions are applicable and needed. However, needed above all is a set of guidelines that clearly designate roles and responsibilities for the services and provide directives on how services will operate in a joint environment.

Joint Publication 3-09

Joint Pub 3-09 is the joint initiative currently under way to resolve the deep battle integration issue. The main focus is the integration of operations that occur between joint forces under the umbrella of "joint fire support." Joint fire support may include the lethal effects of close air support (by fixed- and rotary-wing aircraft), air interdiction (AI) within component boundaries, naval surface fire support, artillery, mortars, rockets, and missiles, as well as non-lethal effects such as electronic warfare.³⁰

A review of Joint Pub 3-09 reveals that, like most joint doctrine, it is very general and nondescriptive. This allows joint TTP, services, and combatant commanders the flexibility to fill in needed details at the appropriate levels. However, when contrasted specifically with the FSCL issue, several areas are not adequately addressed.

First, the interface and overlaps between joint fire support, interdiction, deep operations, and maneuver are not clearly defined. Vague statements such as "detailed integration with the fire and maneuver of the supported force may be required" are too ambiguous to be of any practical value. The term *fire support* connotes a concept of supporting maneuver. This suggests integration with maneuver will be required. These types of phrases foster the same type controversy that now clouds the definition and requirements for coordinating, implementing, and moving the FSCL.

Secondly, Europe, Korea, and ARCENT identified a requirement for a line other than the FSCL (reconnaissance interdiction planning line [RIPL], deep battle synchronization line [DBSL]) for use at the theater or operational level. Specifically, a line is needed as a separator for deep battle responsibilities, interdiction, and air-ground efforts. This

was a key issue in ARCENT and corps after-action reports from ODS. Joint Pub 3-09 does not directly address this military-wide, joint issue.

Finally, this publication has been in draft form for at least six years. The first indication that the controversy may be coming to an end occurred 4-5 December 1996, at the Army-Air Force Warfighter Conference at Fort Bliss, Texas. During the conference, the Army and Air Force chiefs of staff discussed this very issue. The two service chiefs made the following agreements on joint fires, fire support, and Joint Pub 3-09:³¹

- Deleting the notional graphic depicting joint fires and related language from Joint Pub 3-09;
- Changing the name of the joint forces fires coordinator (JFFC) so it does not connote any command function and would be an option primarily for joint task forces (JTF);
- Defining elements of the fires hierarchy in terms of "effects" rather than specific platforms;
- Identifying the surface component commander as the supported commander for joint fires throughout his area of operations. Beyond the surface component commander's (SCC) boundaries, the air component commander (ACC) is the supported commander. In the deliberate planning process, all targets for joint fires will be coordinated to the maximum extent possible; and
- Specifying all targets beyond the FSCL and inside the SCC's area of operations will be coordinated with all affected commanders to the maximum extent possible. If not practical because of time, sensitivity, emergency, or exceptional circumstances, then all affected commanders will be informed with the commander executing the mission accepting the operational risk.

Although these agreements are a first step, they will probably not resolve the issues. When examined in detail, these agreements simply bring Joint Pub 3-09 in line with other often contradictory joint publications. Still to be resolved are (1) Marine Corps views on the FSCL agreements; (2) the control mechanism for integrating, coordi-

nating, and separating interdiction and deep battle; and (3) the agency responsible for implementing and updating the FSCL. These open issues and the five or so years' delay in updating other affected publications, regulations, and TTP indicate that it may still be some time before a comprehensive solution is in place.

Recommendations

The results of this study indicate that three actions are required to resolve the issues surrounding the FSCL and deep battle operations: (1) publish Joint Pub 3-09, including proper control measures for separating roles and responsibilities, while integrating functions and effects; (2) update Joint Pub 1-02 to reflect preciseness in definitions, and eliminate proliferation in terminology; and (3) implement the joint force fires coordinator concept to orchestrate the integration of fires and maneuver at the joint operational level.³²

A search of the Center For Army Lessons Learned and the Joint Universal Lessons Learned System databases yield more than 55 AAR or lessons-learned comments from the field on fire support coordination. Most deal directly with the FSCL or a related fire support coordination measure. The need is apparent. Operation Desert Storm provided an opportunity to test the new JFACC concept and the fire support system. The operation provided the feedback necessary to correct several deficiencies in our joint fire support doctrine. These lessons learned should be incorporated into joint doctrine and published immediately.

Joint Publication 3-09. Prior to publishing Joint Pub 3-09, three corrections are required. First, the definition of FSCL needs to be clarified. A recommended definition reads as follows:

A fire support coordination *measure* established by the *corps level* commander or commander Amphibious Task Force within their boundaries *after* consultation with superior, subordinate, supporting, tactical air, and affected commanders. The FSCL is used to prevent fratricide, deconflict efforts of the close and deep battle, and coordinate fires of all weapon sys-

tems using any type munitions against surface targets. *Supporting elements, operating within the geographical boundaries of the establishing unit, to include tactical air, may attack targets forward of the FSCL without prior coordination with the establishing unit provided the attack will not produce adverse surface or air effects (from ground level up to the coordinating altitude) on or to the rear of the line. Attacks against surface targets behind this line must be coordinated with establishing unit commander. This definition and purpose applies to all US military forces.*

This definition clarifies several issues identified in Operation Desert Storm. First, it labels the FSCL as a corps tactical measure so that all will recognize that it applies to a particular corps's sector. Additionally, subordinate, supporting, adjacent, and tactical air units will know exactly with whom coordination is required. Second, it requires coordination with the tactical air commander prior to implementation or change. Third, it eliminates the guesswork of who can attack beyond it and with whom coordination is required. Fourth, it adds the old coordinating altitude back to protect aircraft either supporting the corps or transiting the corps sector to attack deep. It requires the air and artillery to coordinate if they are going to transit the other's attack space. Finally, it removes the ambiguity of application—it applies to the Army, Air Force, Navy, and Marines.

The second correction to Joint Pub 3-09 is that it must add additional fire support coordination measures that are applicable at the operational level. This can be a RIPL, DBSL, or, as proposed by the Institute for Defense, a joint fire support coordination line.³³ The name of the measure is not important. What is important is that some type of measure entrenched in doctrine be added to joint and service curriculums, doctrines, and TTPs. Additionally, this will eliminate the theater-specific operational measures that were "implemented on the fly" during ODS.

The third correction is for Joint Pub 3-09 to clearly address the distinction between joint fire support and interdiction. The two concepts are used interchangeably as is air interdiction and interdiction. This is part of the cur-

rent problem with fires, deep battle, and interdiction. Additionally, the JFACC's role requires clear articulation to ensure cooperation and integration beginning at the planning process.

Joint Pub 1-02. Joint Pub 1-02 is the bible for joint doctrinal terminology. Yet this document does not define newer concepts such as joint fire support and joint precision interdiction. Additionally, there are concepts used at the tactical levels (BAI, deep battle) that are joint operations and warrant a universal joint definition. This would help resolve proliferation of terms and concepts that cause confusion within the services and theaters. A case in point is the concept of interdiction. There are currently four different interdiction concepts, of which only two are defined in Joint Pub 1-02, *interdiction* and *air interdiction*. Overall, there is interdiction, air interdiction, battlefield air interdiction (BAI—NATO and Korea), and joint precision interdiction.

Additionally, deep battle or deep operations are universally used terms at the joint operational level, but they are not defined in the joint dictionary. Definitions would help eliminate the individual service and theater interpretations of their meanings. Manuals of this type (Joint Pub 1-02) require updating at least biannually, if not in hard copy then on-line through the Joint Electronic Library.

Joint Force Fires Coordinator (JFFC). Synonymous with the concept of fire support is a fire support element to integrate and synchronize fire support assets and their effects with the maneuver concept. From company through corps levels, this concept has proven to be indispensable. The only land maneuver level that does not include a fire support coordinator (FSCoord) or fire support officer and FSE is the joint land/surface component level. The battlefield coordination detachment (BCD), formerly known as the battlefield coordination element, was proposed as the solution. However, the BCD is colocated with the JFACC and serves a vital function there. The JFFC is needed with the land component commander headquarters to perform the synchronization and integration function, full time, as at the corps level. He or she would then pass the air portions of the process directly to the BCD for translation

to the JFACC. This solution, also identified numerous times in ODS lessons learned and issues, would help deconflict several coordination problems among the services.

Conclusions

Current joint doctrine does not provide clear, concise terminology, graphical control measures, and a battlefield framework necessary to integrate assets in deep battle operations. Conflicts between the services resulted in units' and staffs' improvising by implementing nondoctrinal control measures in the midst of preparing for combat in the combat zone. Nondoctrinal use of established terminology and concepts resulted in confusion and contributed to missed opportunity to further demilitarize the Iraqi army.

The intent of joint doctrine is to provide a set of fundamental principles that guide the employment of forces of two or more services in coordinated action toward a common objective. Although ODS was a resounding success, this may have been due more to the ingenuity of the leaders, soldiers, airman, sailors, and marines, than to a well-refined doctrine. Also contributing to the success was the strategy of fighting a sequential war instead of a simultaneous ground-air war. This minimized the impact of the doctrinal shortfalls.

The FSCL issue has gone unresolved since prior to Operation Desert Storm. A control measure of this importance—coordinating the efforts of multiple services, assisting in fratricide prevention, and facilitating ground-soldier preparation for going face-to-face with an enemy—is too important to be debated. This measure requires universal use and understanding by all services. There should be no individual service interpretations and applications. This is the role of joint doctrine—if the services cannot resolve the issue, joint doctrine should. This will provide three benefits.

First, a joint directed definition of and specific rules for the FSCL and other control measures would facilitate training in service schools. Less time is lost debating whether a particular measure is right for a particular situation, or whether one service or the other has the correct interpretation. Second, such a definition and set of rules

would facilitate service-member transfer from one theater to another. As of today, when service members transfer from Europe to Korea, they have to forget the reconnaissance interdiction planning line and learn the deep battle synchronization line. When the same service members transfer stateside to III Corps, they have to forget both, and become familiar with the battle synchronization line. This situation causes confusion and detracts from learning, transfer of knowledge, and cooperation.

Finally, the proposed definition/rules allow leaders and service members to deploy into a theater of combat with a complete understanding of what measures are applicable in what situation. Time spent in Operation Desert Storm relearning the use of a fire support coordination line, what an RIPL or DBSL means (since there are no doctrinal definitions), and the rules for using them could have been used for rehearsing combat operations. Standardization would not tie the CINC's hands or deny him or her the flexibility to organize the forces for his or her theater. What it would do is establish a basic understanding and starting point from which to deviate for a particular situation or theater. That option does not exist with the lack of specificity contained in joint doctrine on control and coordination measures.

Most of the current doctrinal manuals were updated after Operation Desert Storm. However, problems identified by field commanders were not adequately addressed. The next ODS may not provide the luxury of training after entering the theater of operation. Peacetime understanding will enhance wartime execution.

Notes

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4. Joint Pub 3-0, *Doctrine for Joint Operations*, 1 February 1995, III-10-11.
5. *Ibid.*, 201.
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